

Permit Fact Sheet

General Information

Permit Number:	WI-0050725-09-0
Permittee Name:	Saputo Cheese USA Inc
Address:	1052 6TH ST
City/State/Zip:	ALMENA WI 54805
Discharge Location:	NE ¼ NE ¼ Section 12; T33N-R14W
Receiving Water:	The groundwater of the Hay River Basin in Barron County and a ditch tributary leading to the Hay River.
StreamFlow (Q _{7,10}):	The tributary low flow is 0 cfs
Stream Classification:	Non-public water supply, warm water sport fishery (WWSF) community
Wild Rice Impacts:	No impacts identified. No wild rice waters inventoried on the tributary or the Hay River.

Facility Description

Saputo Cheese USA, Inc. operates cheese making and whey processing facilities in Almena, Wisconsin. The primary intake raw material is whole milk. Natural cheeses, cream and whey/whey by-products are produced. The wastewater generated from milk receiving, cheese making, whey processing and product containment/shipping operations processing of the raw milk includes:

- Process wastewater generated from equipment, tank and floor cleanup operations from the facility which is continuously equalized and biologically treated in a two-stage aerated lagoon system consisting of an equalization pond and an aeration lagoon. The treated wastewater is stored in a 22-million-gallon capacity, four lagoon storage system until it is spray irrigated (Outfall 001) during the warm weather months (April-November) over approximately 172 acres of sprayfields managed for crop production and nutrient recycling. Wastewater sludge generated during biological treatment is also landspread on approved sites (Outfall 004).
- High strength wastewater is generated from process source areas contributing milk solids, including separator sludge and primary wash down of the whey evaporator. A portion of the high strength waste includes lactose permeate which is also landspread on approved agriculture fields (Outfall 003).

Whey plant evaporator condensate of whey, or COW water, generated at the facility is reused for steam generation and clean up water. Outfall 002 historically discharged this water to a ditch leading to the Hay River. The outfall is only authorized for emergencies, currently the COW water is discharged to the treatment system after reuse.

Sample Point Designation		
Sample Point Number	Discharge Flow, Units, and Averaging Period	Sample Point Location, WasteType/sample Contents and Treatment Description (as applicable)
701	INFLUENT An average of 0.169 MGD (2016-2020 data)	Representative samples shall be collected between the equalization pond and aerated lagoon.
002	SURFACE WATER This outfall has not been	The use of Outfall 002 shall be limited to emergency discharges of whey condensate and non-contact cooling water. Representative samples shall be collected prior to discharge to the tributary of the Hay

Sample Point Designation		
Sample Point Number	Discharge Flow, Units, and Averaging Period	Sample Point Location, WasteType/sample Contents and Treatment Description (as applicable)
	used since April 2000. Emergency discharges only.	River within the Lower Chippewa River drainage basin.
003	LANDSPREADING 28,964 gallons per year (Application data)	Outfall 003 shall be limited to high strength wastewater segregated from the wastewater streams to landspreading sites. Representative samples shall be collected from the wastewater storage tanks, prior to discharge to the approved landspreading sites.
004	LANDSPREADING 100 tons (Application data)	Discharge from Outfall 004 shall be limited to sludge from an aerated lagoon treatment system and wastewater storage lagoons to landspreading sites. Representative samples shall be collected from the wastewater treatment and storage facilities prior to landspreading.
007	LAND TREATMENT Ave 9,935 gal/acre/day over about 40 discharge days per year. (2016-2020 data)	Spray irrigation field "A" is located in the SWQ NWQ of Section 7; T33N-R13W and consists of 37 acres. Discharge is permitted between May 1st and October 31st annually.
008	LAND TREATMENT Ave 10,278 gal/acre/day over about 33 discharge days per year. (2016-2020 data)	Spray irrigation field "B" is located in the NWQ SWQ of Section 7; T33N-R13W and consists of 37 acres. Discharge is permitted between May 1st and October 31st annually.
009	LAND TREATMENT Ave 10,100 gal/acre/day over about 36 discharge days per year. (2016-2020 data)	Spray irrigation field "C" is located in the SWQ SWQ of Section 7; T33N-R13W and consists of 37 acres. Discharge is permitted between May 1st and October 31st annually.
011	LAND TREATMENT Ave 8,838 gal/acre/day over about 38 discharge days per year. (2016-2020 data)	Spray irrigation field "E" is located in the NWQ SEQ of Section 12; T33N-R14W and consists of approximately 24 acres. Discharge is permitted between May 1st and October 31st annually.
012	LAND TREATMENT Ave 6,930 gal/acre/day over about 46 discharge days per year. (2016-2020 data)	Spray irrigation field "F" is located in the NWQ NEQ of Section 13; T33N-R14W and consists of 37 acres. Discharge is permitted between May 1st and October 31st annually.
101	INPLANT Flow is not a required parameter.	The discharge to the storage ponds is limited to wastewater from the aerated lagoon. Representative samples shall be collected from the manhole after the aerated lagoon prior to discharge to the storage

Sample Point Designation		
Sample Point Number	Discharge Flow, Units, and Averaging Period	Sample Point Location, WasteType/sample Contents and Treatment Description (as applicable)
		ponds.
103	INPLANT An average of 0.509 MGD over a discharge season. (2016-2020 data)	Discharge shall be limited to wastewater from the storage lagoons. Representative samples shall be collected in the pumphouse prior to discharging to the spray irrigation system or from the spray nozzle. The total size of the land treatment system is approximately 172 acres. Discharge and sampling are effective between May 1st and October 31st annually. <i>(Previously sample point 001)</i>

Sample Point Designation For Groundwater Monitoring Systems		
Sample Pt Number	Well Name	Comments
801	WELL 1	Down gradient of the treatment and storage ponds – Point of Standard Well
802	WELL 2	Upgradient of the storage ponds; Down gradient of field “A”
805	WELL 2E	Upgradient – background well used to calculate PALs
806	WELL 3E	Side-gradient of field “C” – Point of Standard Well
807	WELL 5	Down gradient of field “F” – Point of Standard Well
809	WELL 7	Side-gradient of aerated lagoon. Well adjacent to MW813
810	WELL 8	Side-gradient of treatment and storage ponds; Down gradient of field “A”. Well adjacent to MW814.
811	WELL 9	Down gradient of treatment and storage ponds and field “A” – Point of Standard Well
812	WELL 10	Side-gradient of treatment system
813	WELL 7P	Side-gradient of treatment system. Well adjacent to MW809.
814	WELL 8P	Side-gradient of treatment and storage ponds; Down gradient of field “A”. Well adjacent to MW810.
815	WELL 11	Side-gradient of field “A”
816	WELL 6R	Upgradient of field “F”
817	Well 12	Upgradient of field “C”; downgradient of part of field “B”
818	Well 13	Upgradient of fields “B” and “C”, Potential background well

Substantial Compliance Determination

	Compliance?	Comments
Discharge limits	Yes	
Sampling/testing requirements	Yes	
Groundwater standards	Yes	Refer to Groundwater Evaluation for further details and recommendations.
Reporting requirements	Yes	A few late reports but caused no issues.
Compliance schedules	Yes	All schedules have been completed.
Management plan	Yes	Land management plan was last updated in 2018
Operator at proper grade	Yes	James Nelson is certified in A4, B, and U
Other	Current plant subclass A4, Stabilization Ponds and Aerated Lagoons	
Enforcement considerations		
In substantial compliance?	Yes	Substantial compliance was determined from an inspection on 7/31/2019 and follow desktop review on 01/06/2021.
	Concurrence: Jordan J. Englebert	Date: 01/06/2021

1 Influent - Proposed Monitoring

Sample Point Number: 701- PROCESS WW TO AERATED LAGOON

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Flow Rate		MGD	Daily	Continuous	
BOD5, Total		mg/L	Monthly	Grab	
Nitrogen, Total Kjeldahl		mg/L	Monthly	Grab	
Chloride		mg/L	Monthly	Grab	

Changes from Previous Permit & Explanation of Limits and Monitoring Requirements:

No changes from the previous permit. The parameters and monitoring frequency are appropriate for a milk product facility.

2 Inplant - Proposed Monitoring and Limitations

Sample Point Number: 101- DISCHARGE TO STORAGE PONDS

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
BOD5, Total		mg/L	Monthly	Grab	

Changes from Previous Permit & Explanation of Limits and Monitoring Requirements:

No changes from the previous permit. BOD5 sampling helps the facility manage potential odor related issues.

Sample Point Number: 103- WASTEWATER TO SPRAY IRRIGATION

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Flow Rate	Monthly Avg	0 MGD	Daily	Total Daily	Limit effective November 1st through April 30th.
BOD5, Total		mg/L	Monthly	Grab	
Chloride		mg/L	Monthly	Grab	
Nitrogen, Total		mg/L	Monthly	Grab	
Solids, Total Dissolved		mg/L	Monthly	Grab	

Changes from Previous Permit:

- Parameters previously listed under sample point 001 are now listed under inplant sample 103. This change was implemented to provide consistent nomenclature with other land treatment facilities that have multiple spray fields discharging the same waste stream.
- A flow and limit of zero has been added during the non-spray season (November 1 – April 30). This was done to remain consistent with other industrial land treatment facilities.

Explanation of Limits and Monitoring Requirements

Requirements for land treatment of industrial wastewater are determined in accordance with NR 214 Wis. Adm. Code.

Chloride – To reduce potential impacts of chloride to groundwater it was determined a limit of 300 mg/l is needed during the spray season (May 1 – October 31) per NR 214.14(3)(b) Wis. Adm. Code. Currently the facility is unable to meet this limit. A schedule has been added to reduce chloride sources over the permit term (see Schedules for more information).

3 Surface Water - Proposed Monitoring and Limitations

Sample Point Number: 002- DISCHARGE TO TRIBUTARY

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Flow Rate		MGD	Daily	Continuous	
Temperature	Daily Max	100 deg F	2/Month	Grab	
BOD5, Total	Daily Max	40 mg/L	3/Week	24-Hr Comp	
BOD5, Total	Monthly Avg	20 mg/L	3/Week	24-Hr Comp	
Suspended Solids, Total	Daily Max	40 mg/L	2/Month	24-Hr Flow Prop Comp	
Suspended Solids, Total	Monthly Avg	20 mg/L	2/Month	24-Hr Flow Prop Comp	
pH Field	Daily Max	9.0 su	2/Month	Grab	
pH Field	Daily Min	6.0 su	2/Month	Grab	
Dissolved Oxygen	Daily Min	4.0 mg/L	2/Month	Grab	
Nitrogen, Ammonia (NH3-N) Total		mg/L	2/Month	24-Hr Comp	
Phosphorus, Total		mg/L	2/Month	24-Hr Flow Prop Comp	
Conductivity		umhos/cm	Daily	Continuous	
Acute WET		TUa	See Permit Note	24-Hr Flow Prop Comp	See the "Whole Effluent Toxicity (WET) Testing" footnote for more information.
Chronic WET		TUc	See Permit Note	24-Hr Flow Prop Comp	See the "Whole Effluent Toxicity (WET) Testing" footnote for more information.

Changes from Previous Permit & Explanation of Limits and Monitoring Requirements:

There are no changes from the previous permit. This outfall is to be used only in emergency situations and has not been used regularly since April 2000. If discharge is necessary, the facility is required to contact their department compliance staff prior to a discharge who will develop the WET testing schedule. See the "Water Quality-Based Effluent Limitations for the Saputo Cheese USA, Inc. – Almena" memo dated June 17, 2020 for more information.

4 Land Treatment – Proposed Monitoring and Limitations

Sample Point Number: 007- SPRAY FIELD A; 008- SPRAY FIELD B; 009- SPRAY FIELD C; 011- SPRAY FIELD E, and 012- SPRAY FIELD F

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Flow Rate		MGD	Daily	Total Daily	
Hydraulic Application Rate	Monthly Avg	3,500 gal/ac/day	Monthly	Calculated	Effective during the spray season, May 1st - October 31st.
Hydraulic Application Rate	Monthly Avg	0 gal/ac/day	Monthly	Calculated	Effective November 1st - April 30th.
Nitrogen, Max Applied On Any Zone	Annual Total	400 lbs/ac/yr	Annual	Total Annual	Report the highest cumulative nitrogen loading to a spray zone over each calendar year on the December eDMR.

Changes from Previous Permit:

- The parameter maximum nitrogen applied on any zone and a limit 400 lbs/ac/yr has been added to the permit to ensure overloading of a zone (field) does not occur.
- A hydraulic application rate of zero has been added during the off-season (November 1 – April 30). This was done to remain consistent with other industrial land treatment facilities.

Explanation of Limits and Monitoring Requirements

All requirements for land treatment of municipal wastewater are determined in accordance with NR 214 Wis. Adm. Code.

5 Groundwater – Proposed Monitoring and Limitations

5.1 Groundwater Monitoring System for Land Treatment Sites

Location of Monitoring system: Adjacent to Lagoon System and Spray Fields

Wells to be Monitored: 801 (WELL 1), 802 (WELL 2), 805 (WELL 2E), 806 (WELL 3E), 807 (WELL 5), 809 (WELL 7), 810 (WELL 8), 811 (WELL 9), 812 (WELL 10), 813 (WELL 7P), 814 (WELL 8P), 815 (WELL 11), 816 (WELL 6R), 817 (Well 12), 818 (Well 13)

Well Used To Calculate PALs: 805 (WELL 2E)

Enforcement Standard Wells: 811 (WELL 9), 807 (WELL 5), 806 (WELL 3E), 801 (WELL 1)

Parameter	Units	Preventative Action Limit	Enforcement Standard	Frequency
Depth To Groundwater	feet	*****	N/A	Quarterly

Groundwater Elevation	feet	*****	N/A	Quarterly
Nitrogen, Nitrite + Nitrate (as N) Dissolved	mg/L	2.5	10	Quarterly
Chloride Dissolved	mg/L	180	250	Quarterly
pH Field	su	8.0	N/A	Quarterly
Nitrogen, Total Kjeldahl Dissolved	mg/L	*****	N/A	Quarterly
Nitrogen, Ammonia Dissolved	mg/L	0.97	9.7	Quarterly
Nitrogen, Organic Dissolved	mg/L	2.5	N/A	Quarterly
Nitrogen, Total Dissolved	mg/L	5.6	N/A	Quarterly
Solids, Total Dissolved	mg/L	460	N/A	Quarterly

Changes from Previous Permit:

The PALs and Enforcement Standard (ES) limits will remain the same except for three parameters, chloride, pH and total dissolved solids.

Parameter	Previous Permit		Current Permit	
	Preventive Action Limit	Enforcement Standard	Preventive Action Limit	Enforcement Standard
Chloride Dissolved	176 mg/L	250 mg/L	180 mg/L	250 mg/L
pH Field	5.7 - 7.7 su	N/A	6.0 - 8.0 su	N/A
Solids, Total Dissolved	411 mg/L	N/A	460 mg/L	N/A

Explanation of Limits and Monitoring Requirements

Groundwater limits and requirements are determined in accordance with ch NR 140 Wis. Adm. Code. Indicator parameter Preventative Action Limit (PAL) values are established per ch NR 140.20 Wis. Adm. Code. For more information please refer to the “Saputo Cheese USA Inc (Almena) - Groundwater Evaluation Report, WPDES Permit # WI-0050725” dated February 5, 2020.

Nitrite+Nitrate and **Chloride** - PAL values were recalculated and adjusted per ch NR 140.20 Wis. Adm. Code. Alternative concentration limits (ACL) of **2.5 mg/L** has been established for the **Nitrite + Nitrate** and **180 mg/L** for the **Dissolved Chloride** PAL at this site. These ACLs are authorized in conjunction with an exemption granted under s. NR 140.28, Wis. Adm. Code.

pH, and **Total Dissolved Solids** - PAL values were recalculated and adjusted per ch NR 140.20 Wis. Adm. Code.

6 Land Application - Sludge/By-Product Solids

Sample Point Number: 003- HIGH STRENGTH WASTEWATER

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
BOD5, Total		mg/L	Monthly	Grab	
Nitrogen, Total Kjeldahl		mg/L	Monthly	Grab	
Chloride		mg/L	Monthly	Grab	
Phosphorus, Total		mg/L	Monthly	Grab	
Potassium, Total Recoverable		mg/L	Monthly	Grab	
Phosphorus, Water Extractable		% of Tot P	Monthly	Grab	

Changes from Previous Permit:

The parameter water extractable phosphorus has been included.

Explanation of Limits and Monitoring Requirements

Requirements for land application of industrial sludge are determined in accordance with ch. NR 214 Wis. Adm. Code

Water Extractable Phosphorus - Water extractable phosphorus (WEP) is the coefficient for determining plant available phosphorus from measured total phosphorus. In Wisconsin, the Penn State Method is utilized and is expressed in percent. While a total P may be significant, the WEP may show that only a small percentage of the P is available to plants because of factors such as treatment processes and chemical addition that “tie-up” phosphorus limiting the amount of phosphorus that is plant available. As part of the Wisconsin’s nutrient management plan (NMP) requirements, the accounting of all fertilizers must be included over the NMP cycle. The fertilizer value of the waste needs to be communicated to the farmer and accounted for in the NMP.

Sample Point Number: 004- SLUDGE

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Solids, Total		Percent	Monthly	Grab	
pH Field		su	Monthly	Grab	
Nitrogen, Total Kjeldahl		Percent	Monthly	Grab	
Chloride		Percent	Monthly	Grab	
Phosphorus, Total		Percent	Monthly	Grab	
Potassium, Total		Percent	Monthly	Grab	

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Recoverable					
Phosphorus, Water Extractable		% of Tot P	Monthly	Grab	

Changes from Previous Permit:

The parameter water extractable phosphorus has been included.

Explanation of Limits and Monitoring Requirements

Requirements for land application of industrial sludge are determined in accordance with ch. NR 214 Wis. Adm. Code

Water Extractable Phosphorus - Water extractable phosphorus (WEP) is the coefficient for determining plant available phosphorus from measured total phosphorus. In Wisconsin, the Penn State Method is utilized and is expressed in percent. While a total P may be significant, the WEP may show that only a small percentage of the P is available to plants because of factors such as treatment processes and chemical addition that “tie-up” phosphorus limiting the amount of phosphorus that is plant available. As part of the Wisconsin’s nutrient management plan (NMP) requirements, the accounting of all fertilizers must be included over the NMP cycle. The fertilizer value of the waste needs to be communicated to the farmer and accounted for in the NMP.

7 Schedules

7.1 Chloride Source Reduction Measures (SRMs) for Groundwater Discharges

Required Action	Due Date
Chloride Reduction Plan: The permittee shall complete and submit for Department review and approval a chloride reduction plan (CRP). The CRP is an initial step toward controlling chloride and ensuring compliance with chloride limits based on applicable groundwater standards. The CRP shall evaluate all applicable source reduction measures (SRMs) and establish appropriate implementation activities for the SRMs. The CRP shall include a schedule for implementing the selected SRMs.	12/31/2021
Annual Progress Report: Once the chloride reduction plan (CRP) is approved by the Department, the permittee shall submit an annual progress report, under the authority of s. NR 205.07(1)(h), Wis. Adm. Code. If a SRM implementation date of an approved CRP is not met, this may constitute a violation of the permit. Submittal of the first annual progress report is required by the Date Due.	12/31/2022
Second Annual Progress Report: Submit progress report in implementing the chloride reduction plan (CRP).	12/31/2023
Third Annual Progress Report: Submit progress report in implementing the chloride reduction plan (CRP).	12/31/2024
Fourth Annual Progress Report: Submit progress report in implementing the chloride reduction plan (CRP).	12/31/2025
Final Annual Progress Report: Submit progress report in implementing the chloride reduction plan (CRP).	12/31/2026

Explanation of Schedules

To reduce potential impacts of chloride to groundwater it was determined a limit of 300 mg/l is needed during the spray season (May 1 – October 31) per NR 214.14(3)(b) Wis. Adm. Code. Currently the facility is unable to meet this limit. A schedule has been added to reduce chloride sources over the permit term

Attachments:

Water Flow Schematic(s)

“Saputo Cheese USA Inc (Almena) - Groundwater Evaluation Report, WPDES Permit # WI-0050725” memo dated February 5, 2020

“Water Quality-Based Effluent Limitations for the Saputo Cheese USA, Inc. – Almena” memo dated June 17, 2020

Proposed Expiration Date:

June 30, 2026

Justification Of Any Waivers From Permit Application Requirements

N/A

Prepared By:

Sheri A. Snowbank Wastewater Specialist

Date: February 18, 2021

cc: Jordan Englebert, Spooner